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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/912,315	07/26/2001	Hideo Kobayashi	110207	4956

25944 7590 08/06/2004

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EXAMINER

NGUYEN, KEVIN M

ART UNIT PAPER NUMBER

2674

DATE MAILED: 08/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/912,315

Applicant(s)

KOBAYASHI ET AL.

Examiner

Kevin M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. The amendment filed on 05/27/2004 is entered. The claims 1-18 have been rejected in view of the newly discovered reference(s) to Tanaka et al (US 6,388,649). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1-7, 9, 12, 14-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka et al (US 6,388,649)

As to claims 1, 16, Tanaka teaches an apparatus associated with a method, the apparatus comprising:

Ferroelectric liquid crystals layer FLC 903 (a display element, fig. 9), a photoconductive layer 902 (an optical switching element, fig. 9)

The photoconductive layer 902 has the diode characteristics, so that the photoconductive layer 902 is in a low-resistance state during the application of forward bias voltage, and is in a high-resistance state during the application of reverse bias voltage, so as to generate a photoelectric current. For simplicity, the diode characteristics are assumed to be ideal (i.e., the forward resistance is 0, and the reverse resistance is infinity), and the dark current is assumed to be so small as

compared with the photoelectric current that it can be neglected during the application of the reverse bias voltage (fig. 9, col. 14, lines 12-22).

As to claims 2, 12, Tanaka teaches the photoconductive layer 902 has the diode characteristics, so that the photoconductive layer 902 is in a low-resistance state during the application of forward bias voltage, and is in a high-resistance state during the application of reverse bias voltage, so as to generate a photoelectric current. For simplicity, the diode characteristics are assumed to be ideal (i.e., the forward resistance is 0, and the reverse resistance is infinity), and the dark current is assumed to be so small as compared with the photoelectric current that it can be neglected during the application of the reverse bias voltage (fig. 9, col. 14, lines 12-22).

As to claims 3, 4, 17, 18, Tanaka teaches an apparatus associated with a method, the apparatus comprising:

Ferroelectric liquid crystals layer FLC 903 (a display element, fig. 9), a photoconductive layer 902 (an optical switching element, fig. 9).

The photoconductive layer 902 has the diode characteristics, so that the photoconductive layer 902 is in a low-resistance state during the application of forward bias voltage, and is in a high-resistance state during the application of reverse bias voltage, so as to generate a photoelectric current. For simplicity, the diode characteristics are assumed to be ideal (i.e., the forward resistance is 0, and the reverse resistance is infinity), and the dark current is assumed to be so small as compared with the photoelectric current that it can be neglected during the application of the reverse bias voltage (fig. 9, col. 14, lines 12-22).

In FIG. 12(a), as the applied voltage changes from the positive voltage to the negative voltage, the polarization has a path $A \rightarrow G \rightarrow B \rightarrow C \rightarrow D$. As the applied voltage changes from the negative voltage to the positive voltage, the polarization has a path $D \rightarrow C \rightarrow E \rightarrow G \rightarrow A$. Herein, P_s denotes the magnitude of the spontaneous polarization, and V_{th} or $-V_{th}$ denotes the threshold voltage of switching (col. 14, lines 60-67).

As to claims 5, 6, 7, Tanaka teaches FIG. 12(b), as the applied voltage changes from the positive voltage to the negative voltage, the polarization has a path $A \rightarrow G \rightarrow B \rightarrow C \rightarrow D$. As the applied voltage changes from the negative voltage to the positive voltage, the polarization has a path $D \rightarrow C \rightarrow E \rightarrow G \rightarrow A$. Herein, P_s denotes the magnitude of the spontaneous polarization, and V_{th} or $-V_{th}$ denotes the threshold voltage of switching (col. 14, lines 60-67).

As to claim 9, Tanaka teaches a photoconductive layer made of an organic material (col. 12, lines 11-17).

As to claims 14 and 15, Tanaka et al teaches

An SLM 2103 has a construction shown in fig. 7 (col. 26, line 34).

Perform feedback to the brightness of the backlight instead of the use of the transmittance variable filter 2113 (col. 29, lines 41-42).

In accordance with the monitored value, a control signal is generated by a signal processing system constituted of an A/D converter 2110, an operation unit 2111, and a D/A converter 2112. The generated control signal is fed to a driving pulse generator 2108 or a transmittance variable filter 2113. The driving pulse waveform generated by

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the driving pulse generator 2108 and the transmittance of the transmittance variable filter 2113 are varied in accordance with the control signal (col. 26, lines 51-59).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 8, 10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al in view of Iijima et al (previously cited, US 5,516,607).

As to claims 8, 10, 13, Tanaka et al teaches all of the claimed limitations, except for "a cholesteric liquid crystal, and the photoconductive layer comprise a charge generating layer, a charge transport layer."

However, Iijima et al teaches a cholesteric liquid crystal (column 6, lines 57-58), a charge-generating layer, a charge transport layer (column 13, lines 41-45).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to substitute each Tanaka's FLC layer, and photoconductive layer including the a cholesteric liquid crystal layer, and a charge generating layer, a charge transport layer, respectively, in view of the teaching in the Iijima's reference because this would improve the high resolution images (column 3, lines 12-13), while fabricating the display panel as simple as well (column 3, lines 20-22 of Iijima et al).

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al in view of Yoshida (newly cited, US 5,841,489).

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As to claim 11, Tanaka et al teaches all of the claimed limitation of claim 1, except for the applied voltage is a sine wave whose frequency is equal to or higher than 500Hz.

However, Yoshida teaches the rectangular wave generator 21 is provided for generating a rectangular wave shaped electric voltage (ac electric voltage) having a frequency of 1kHz (fig. 18a, col. 18, lines 4-6).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to substitute Tanaka's AC voltage including the rectangular wave shaped electric voltage (ac electric voltage) having the frequency of 1kHz, in view of the teaching of Yoshida's reference because this would provide more effective and low cost.

Response to Arguments

5. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Kevin M. Nguyen** whose telephone number is **703-305-6209**. The examiner can normally be reached on MON-THU from 9:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richard A Hjerpe** can be reached on **703-305-4709**.

Any response to this action should be mailed to:

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Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered response should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Kevin M. Nguyen
Patent Examiner
Art Unit 2674

KN
August 2, 2004


XIAO WU
PRIMARY EXAMINER